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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 09/914,966
Applicant(s) : LARRY NEIL MACKEY et al.
Filed : September 6, 2001
TC/A.U. : 1771
Examiner : Cheryl Ann Juska
Conf. No. : 6640
Docket No. : 7456R
Customer No. : 27752
Title : ABSORBENT FLEXIBLE STRUCTURE
: COMPRISING STARCH FIBERS

REPLY BRIEF UNDER 37 C.F.R. 41.41

Mail Stop AF
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450
Dear Sir:

INTRODUCTORY REMARKS

This Reply Brief, which is timely, is filed in response to the Examiner's Answer, mailed March 12, 2007.

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EXAMINER'S ANSWER

The Examiner has acknowledged the correctness of Section 1 through Section 9 of Appellant's Appeal Brief.

This Reply Brief is being filed in view of Section 10, Response to Argument, in the Examiner's Answer.

THE EXAMINER'S POSITION

As stated within the Examiner's Answer, the Examiner continues to maintain that Claims 33-35 and 37-52 are obvious over U.S. Patent No. 4,243,480 to Hernandez et al. ("Hernandez").

The Examiner asserts that Hernandez's disclosed process for making fibers; namely, introducing a starch dispersion into a coagulation bath is capable of making 10 μ m diameter starch fibers. In addition, the Examiner has maintained that Hernandez suggests to one of ordinary skill in the art a starch fiber diameter of less than 10 μ m (e.g., 9.9 μ m). Answer, p. 9. The Examiner further asserts that Hernandez is presumed enabled for a starch fiber having a diameter of 10 μ m since there is no evidence on record establishing otherwise.

The Examiner also continues to maintain that Claim 36 is obvious over Hernandez in view of U.S. Patent No. 5,516,815 to Buehler et al. ("Buehler").

APPELLANT'S REPLY

Appellant respectfully submits that obviousness is established "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. 35 U.S.C. §103(a) [Emphasis added].

Appellant submits that one of ordinary skill in the art at the time of the invention (March 7, 2000) would not have been taught by Hernandez, alone or with his/her own knowledge and/or other prior art references, how to make 10 μ m diameter starch fibers.

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Under the current state of the law for obviousness, if a person of ordinary skill in the art can implement a predictable variation, and would see a benefit of doing so, §103 likely bars patentability. *KSR INT'L CO. v. TELEFLEX INC.*, 550 U.S. ____ (2007).

Appellant respectfully submits that a person of ordinary skill in the art could not implement a predictable variation by using his/her own knowledge and the teachings of Hernandez to produce a starch fiber having a fiber diameter of less than 10µm for the following reasons.

First, Appellant respectfully submits that, at the time of the invention, one of ordinary skill in the art would not have had the equipment to make 10µm diameter starch fibers, let alone less than 10µm diameter starch fibers. The state of the art for spinnerette hole diameters, at the time of the invention, was well above 10µm diameter holes. Hernandez teaches in Example 1 a spinnerette having apertures that exhibit a diameter of 70.2µm. This was likely the cutting edge of spinnerette aperture diameters. With the introduction of laser, EDM and E-beam technologies and the application of those to creating holes, especially capillary holes suitable for spinning fibers, the production of spinnerettes with hole diameters of less than 50µm has become commercially feasible. However, one manufacturer that specializes in drilling holes in materials (not necessarily spinnerette materials), National Jet Company (www.najet.com), highlights on their website that they can still only drill holes down to 0.0005 inches (about 13µm). Nowhere is it mentioned or taught on their website that they or any manufacturer can produce a spinnerette for spinning fibers having hole diameters of 10µm or less. Therefore, Appellant submits that, at the time of the invention, spinnerettes for use with Hernandez's process were not commercially available or known to make 10µm or less diameter starch fibers. Therefore, Appellant respectfully submits that Hernandez's process, at the time of the invention, could not have made 10µm or less diameter starch fibers.

Second, even if a spinnerette having a hole diameter of 10µm was available in the art at the time of the invention, Appellant submits that the Mackey Declaration under 37 CFR §1.132 filed December 7, 2005, Section 3 supports the fact that 10µm or less diameter starch fibers could not be produced via such a 10µm diameter hole due to clogging of the hole by particles present within Hernandez's starch dispersion.

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Third, if one of ordinary skill in the art used a spinnerette having a hole diameter greater than 10 μ m, such as 70.2 μ m diameter hole, like Hernandez's Example 1, there is absolutely no teaching of drawing or attenuating a starch fiber produced from such spinnerette to create a starch fiber having a diameter of less than 10 μ m. Recall that Hernandez introduces its starch dispersion into a coagulating bath where the starch fiber is precipitated almost immediately upon contacting the coagulating bath, thus not permitting an opportunity to significantly draw and/or attenuate the fiber to significantly reduce its fiber diameter, especially to less than 10 μ m.

Fourth, with respect to the Examiner's reliance on the statement, "It is well known that the diameter of a spun fiber is essentially equivalent to the diameter of the extrusion die through which the spun fiber is formed unless the spun fiber is subjected to extremely high attenuation forces." (Mackey Declaration), to assert that Appellant recognizes that it is well known in the art to attenuate fibers, Appellant submits that if 10 μ m diameter hole spinnerettes are not known in the art at the time of the invention, then 10 μ m or less diameter fibers, especially starch fibers, cannot be produced without significant attenuation and Hernandez clearly fails to teach any such attenuation. Appellant submits that combining extremely high attenuation forces to the fiber produced by Hernandez's process is inoperable due to the fact that Hernandez's process teaches introducing its starch dispersion into a coagulation bath, where the fiber is formed, not into air like meltblowing and/or spunbonding fiber spinning processes.

In light of the foregoing reasons, Appellant respectfully submits that Claims 33 and 52 are not rendered obvious over Hernandez. Further, Appellant submits that Claims 34-35 and 37-51, which ultimately depend from Claim 33, are not rendered obvious over Hernandez. MPEP 2143.03.

Further, Appellant respectfully submits that Claim 36, which ultimately depends from Claim 33, discussed above, is not rendered obvious over Hernandez in view of U.S. Patent No. 5,516,815 to Buehler et al. for the same reasons that Claim 33 is not rendered obvious over Hernandez.

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The remarks contained within this Reply Brief are an addition to the remarks contained within Appellant's Appeal Brief, Amendments and Responses contained in the present Application, which are incorporated herein by reference.

In light of the foregoing, Appellant respectfully requests the Board to reverse all of the rejections by the Examiner in the final rejection, as discussed above.

Respectfully submitted,

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Date: May 11, 2007
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